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Draft Cape Cod Stormwater BMP QAPP

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**DRAFT  
QUALITY ASSURANCE PROJECT PLAN  
for**

**Monitoring of Green Infrastructure Stormwater Best Management Practice Retrofit for  
Municipal Properties on Cape Cod – A Demonstration, Education, and Outreach Project**

~~December~~ January 2015

**A Joint Project Between:**

Region I U.S. Environmental Protection Agency  
Office of Environment Protection &  
Office of Environmental Measurement & Evaluation

Towns of Barnstable and Chatham, MA

MA Department of Environmental Protection

EPA Project Manager: \_\_\_\_\_ Date: \_\_\_\_\_  
Ray Cody

OEP Technical Advisor: \_\_\_\_\_ Date: \_\_\_\_\_  
Marcel Belaval

EMT Technical Advisor: \_\_\_\_\_ Date: \_\_\_\_\_  
Tim Bridges

EMT Technical Advisor: \_\_\_\_\_ Date: \_\_\_\_\_  
Tom Faber

EPA Chemistry Laboratory Lead: \_\_\_\_\_ Date: \_\_\_\_\_  
Dan Boudreau

EPA QA Officer: \_\_\_\_\_ Date: \_\_\_\_\_

EMT Team Leader: \_\_\_\_\_ Date: \_\_\_\_\_

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Diane Switzer

Water Vision Lead: \_\_\_\_\_ Date: \_\_\_\_\_  
Ken Hickey

Town of Chatham Lead: \_\_\_\_\_ Date: \_\_\_\_\_

Town of Barnstable Lead: \_\_\_\_\_ Date: \_\_\_\_\_

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## INTRODUCTION

EPA is interested in retrofitting existing stormwater discharges using innovatively-engineered green infrastructure (GI) stormwater BMPs on Cape Cod as a demonstration for control of stormwater flows and nitrogen pollution. EPA will coordinate with the Cape Cod Commission, Massachusetts Department of Environmental Protection, the Towns of Barnstable and Chatham, as well as other interested parties to identify up to two priority municipal/public sites for the project. The work conducted as part of this project would have broader applicability throughout all of New England.

A project for design and construction of a stormwater BMP to control and treat nitrogen aligns with EPA priorities, including selecting sites that are consistent with TMDLs and the section 208 Water Quality Plan update; promoting the appropriate application of GI and low impact development (LID); using technologies that improve stormwater infiltration and lead to reductions in runoff volume and peak volume discharge; improving water quality, and; potentially reducing combined sewer overflow (CSO) events (if locations are in a CSO area). Another very important objective is to engage local departments of public works personnel in understanding the installation techniques and operations and maintenance for GI practices, and in participating in the monitoring of the BMP for practical experience and project feedback.

This plan describes the responsibilities, objectives, and the technical and quality assurance tasks that will apply to successfully carry out the project. The project manager anticipates that there may be only one demonstration project, either in Barnstable or Chatham. The decision as to which site will be selected will be made at a later date. Therefore, both candidate sites will apply as participants plan. The BMP, and sampling and analytical features of the project will be the same, regardless of location.

## I. PROJECT DESCRIPTION

### A. Objective and Scope Statement



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**B. Scoping Meetings**

For EPA's initial discussion of technical details for the sampling and analysis portion of the project, a set of kick-off conference calls were held. Participants included Ray Cody, Marcel Belaval, Mark Voorhees, Lynne Hamjian, Katrina Kipp, Tim Bridges, Ernest Waterman, and Diane Switzer.

Communications continue as the details of the overall project are worked out with EPA, Water Vision, the Municipalities, MA DEP, and other partners.

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III. DATA REPRESENTATIVENESS/COMPARABILITY/COMPLETENESS

Samples must be representative of the BMP stormwater inflow and treated outflow. The outflow will be compared to the inflow to assess change in nitrogen and TSS concentrations. The target requirement of valid data for the total number of rain events and operational BMP inflow and outflow sampled is 90% completeness. However, an evaluation of critical samples will determine if data are incomplete, and the Project Manager, OEP and EMT technical assistance leads will determine if additional rainfall events are needed.

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IV. SAMPLING PROCEDURES

Samples will be collected according to BMP Project Monitoring Plan. Nutrient and TSS samples will be collected as flow-composited samples. On any occasion that the contractor and technical assistance leads determine that another procedure must be used to obtain samples, the procedure will be documented in the field log book with a description of the circumstances requiring its use. Sampling personnel must have qualifications as described in Section IX.

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Samples will be collected in accordance with the BMP Project Monitoring Plan. Each Sample will be given a unique identification number which corresponds with the inflow and outflow locations, and rainfall event. Samples for chemical analysis will be handled according to EPA's OEME Lab SOP database.

VI. DOCUMENTATION, DATA REDUCTION, AND REPORTING

All information will be recorded in field log books or Cape Cod Stormwater BMP field data sheets, in addition to completion of all chain of custody forms, labels, etc. Any photographs taken will be documented in the field log book or field sheets. Analytical data will be tabulated by the laboratory and reported to the Project Manager in accordance with NERL procedures and the NERL Laboratory Quality Manual. The expected turnaround time for analytical results is approximately one month. Field reporting will be in accordance with attached Monitoring Plan.

VII. DATA REVIEW

Analytical data will be reviewed by routine laboratory procedures specified in the NERL Laboratory Quality Manual. Data will be reviewed against the criteria presented in sections I.E., II, and III of this Project Plan. Any limitations on the use of data will be documented and explained. Field data will be compiled and reviewed by Water Vision and Technical Assistance leads, and any corrective actions or issues that are needed will be brought to the Project Manager.

VIII. CORRECTIVE ACTION

Any corrective action regarding field work, and onsite meters, will be determined by Water Vision and Field Assistance Leads, documented as necessary, and discussed with the Project Manager.

Any significant issue with laboratory performance identified by the Chemistry Laboratory will require that the Project Manager be notified immediately and appropriate corrective action taken.

Performance and systems audits may be performed by the EPA QA Office, or Chemistry and Field QA Officers, as requested by the Project Manager. Possible reasons for an audit may include: new field personnel, new sampling procedures, and/or unusual field circumstances.

IX. TRAINING

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Field personnel are required to attend training and demonstrate proficiency in their duties. Performance competency will be determined by Water Vision/EPA Technical Assistance Leads. All field personnel are required to attest that they have read and understood all applicable protocols and this QAPP. NERL personnel undergo annual training in the area of data reporting and use.

X. TENTATIVE SAMPLING SCHEDULE:



XI. REFERENCES

XII. ATTACHMENTS

A. BMP Site(s) Information

i. Chatham

ii. Barnstable

B. BMP Project Monitoring Plan

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